

Abstract

Ternary optical data storage method and apparatus for Write Once Read Many Times (WORM) optical data storage with two-photon fluorescent writing and readout.

5 The data storage capacity is limited by the optical resolution of a system. In CD/DVD systems, an increase in the aerial data density has been primarily achieved by decreasing the bit dimension. However, the size of the optical spot (bit) is restricted by limitations imposed by the diffraction of light (Rayleigh criterion). Therefore, technologies that can effectively create and detect spot sizes beyond the diffraction limit (sub-Rayleigh) hold

10 promise to achieving high-density optical storage.